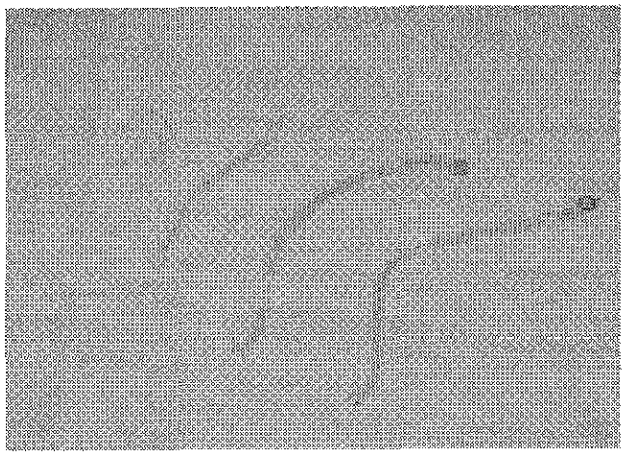
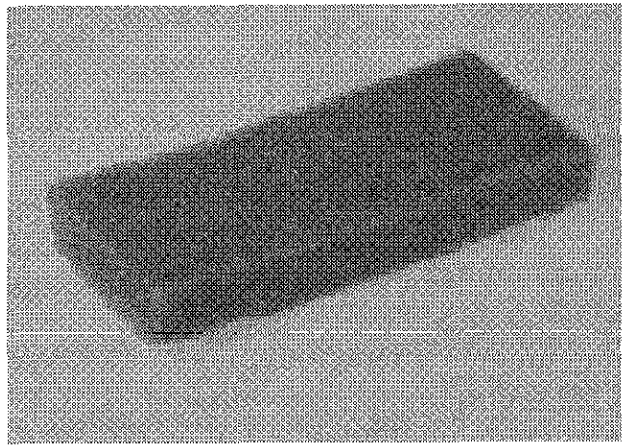
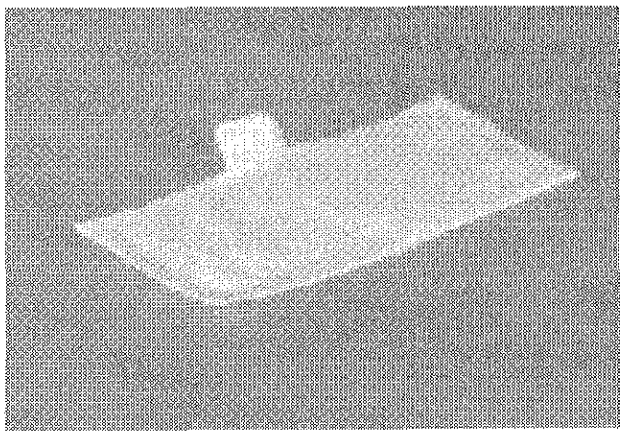


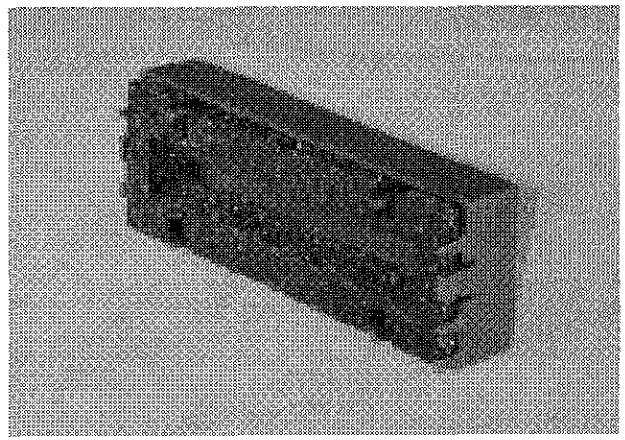
Tubing Kit RP# 1011218



Pollen Filter RP# 1005964



Ultra-Fine Filter RP# 1005945



Filter Cap RP# 1008479

* Contact Respironics Product Support for the proper labeling when replacing the bottom enclosure, top enclosure, or keypad.

** The correct part number of the main PCA for your REMstar Pro is linked to the model number.

Contact Respironics Product Support and provide the model number located on the bottom of the REMstar PRO to order the correct main pca.

*** Contact Respironics International Customer Service for further AC power cord ordering information.

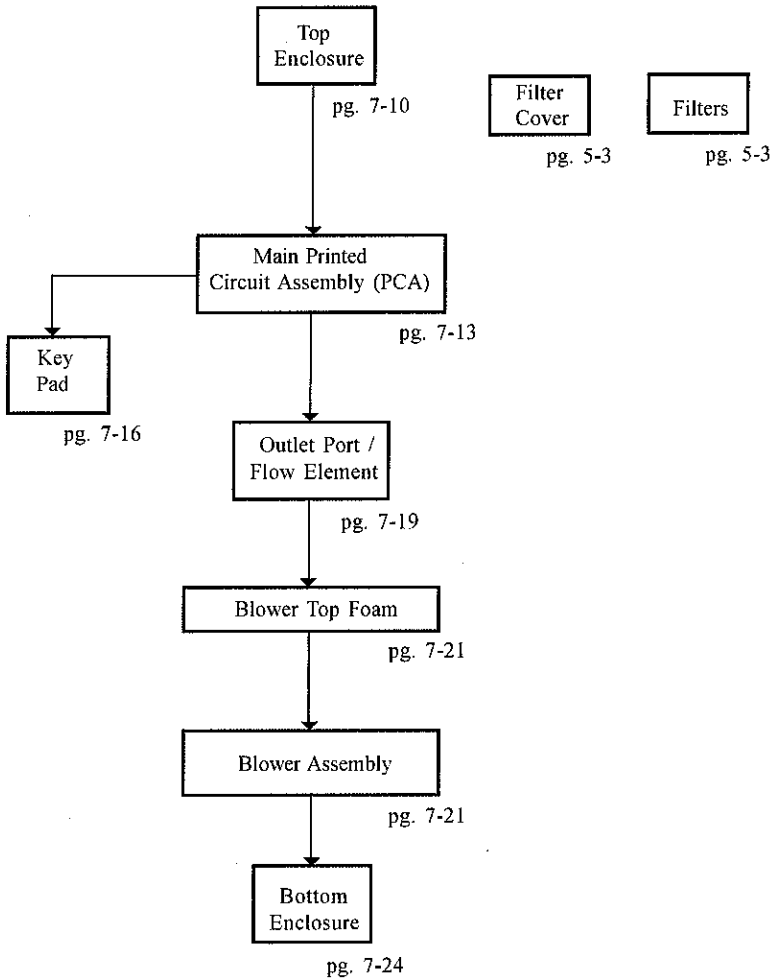
7.3 Warnings and Cautions

WARNING: To prevent electrical shock, disconnect the electrical supply before attempting to make any repairs to the REMstar Pro CPAP System.

CAUTION: Electronic components used in this unit are subject to damage from static electricity. Repairs made to this unit must be performed only in an antistatic, Electro-Static Discharge (ESD)-protected environment.

7.4 Replacement Instructions

See Figures 7-1and 7-2 before removing or installing any components. These figures will detail the order in which each item must be removed or installed and should be used as a guideline for quick reference.



Removal Flow Chart

Figure 7-1
Removal Flow Chart

Chart Usage: Determine which item is to be replaced then follow the line of flow back to the "Top Enclosure" and begin the removal process. Detailed procedures begin on the referenced page numbers.

Installation Flow Chart

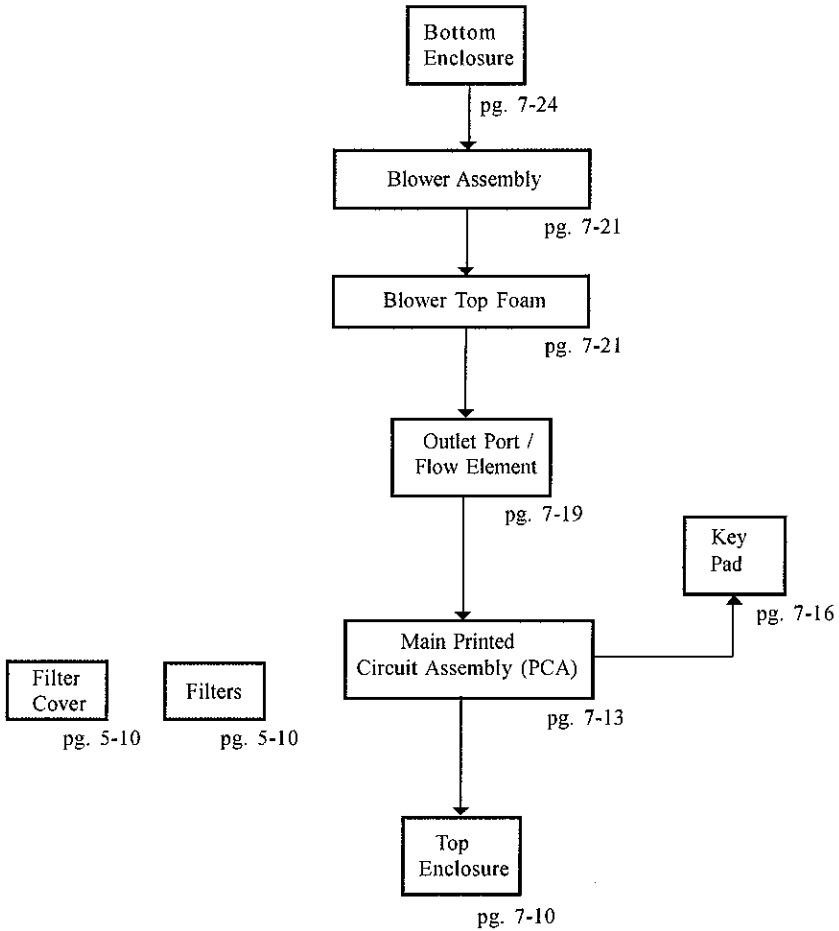


Figure 7-2
Installation Flow Chart

Chart Usage: Determine which item is to be installed then follow the line of flow down to the "Top Enclosure" and begin the installation process. Detailed procedures begin on the referenced page numbers.

7.4.1 Top Enclosure Replacement

Replacement Part Number 1011931

NOTE: Contact Respironics Product Support Department for Top Enclosure ordering information.

Included in kit:	Tools Required:
Top Enclosure 8 Hi - Lo x 1/2" (x3)	Phillips screwdriver (No. 2 medium)

Procedure

Removed / Installed During Process:

- Top Enclosure

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

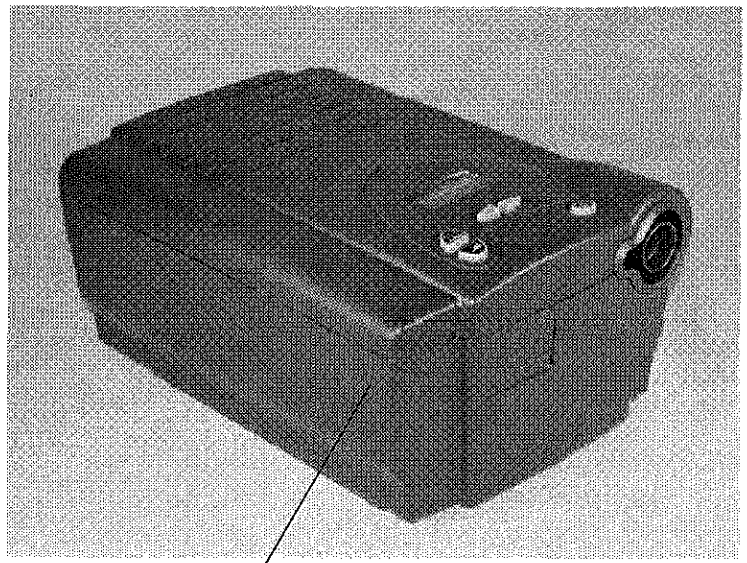


Figure 7-3
Top Enclosure

Top Enclosure Replacement (Continued)

Step 1 Removing the Top Enclosure

a. Place the device on a protected work surface and carefully turn it over, exposing the bottom.

b. Using a Phillips screwdriver, remove the three screws that secure the top enclosure to the bottom enclosure.

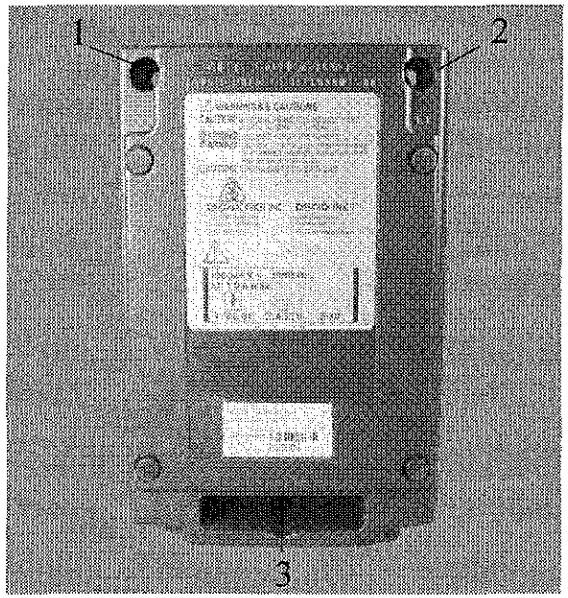


Figure 7-4
Location of the Top Enclosure Screws

c. While securely holding the top and the bottom enclosure together, carefully return the device to its upright position.

d. Lift the top enclosure up and away from the bottom enclosure.

NOTE: Nothing is connected to the top enclosure.

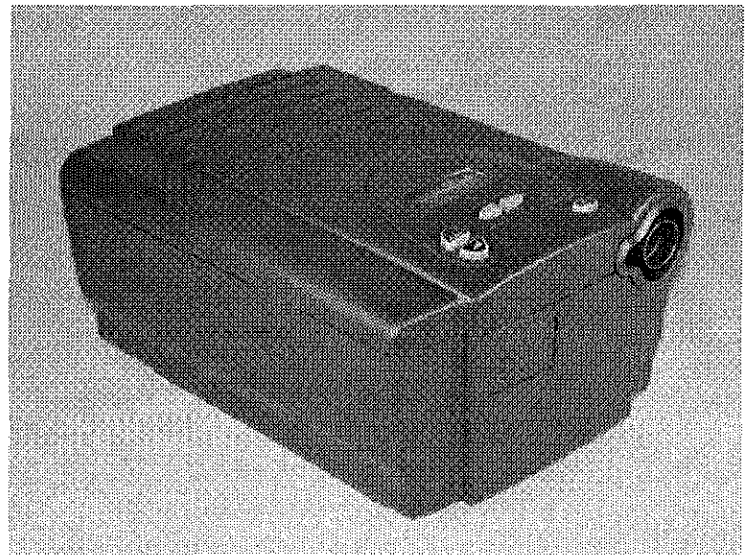


Figure 7-5
Top Enclosure Removal

Top Enclosure Replacement (Continued)

Step 2 Installing the Top Enclosure

a. Place the new top enclosure down over the control pad and main PCA.

b. While securely holding the top enclosure and bottom enclosure together, carefully turn the device upside down.

c. Insert and tighten the three Phillips screws to secure the top and bottom enclosure together.

d. Return the device to its upright position.

7.4.2 Main Printed Circuit Assembly (Main PCA) Replacement

Replacement Part Number *

NOTE: The correct part number of the main PCA for your REMstar Pro is linked to the model number.

Contact Respironics Product Support and provide the model number located on the bottom of the REMstar PRO to order the correct main PCA.

Included in Kit:	Tools Required:
Main PCA	Phillips screwdriver (No. 2 medium)

Procedure

Removed / Installed During Process:

- Top Enclosure
  (See Section 7.4.1 for more detailed instructions).
- Main PCA

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

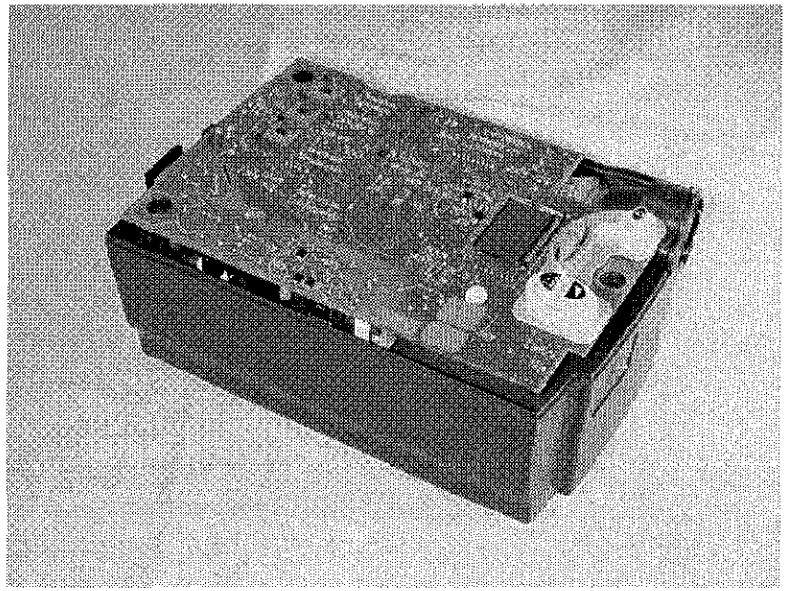


Figure 7-6
Main Printed Circuit Assembly

Main PCA Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the Top Enclosure.)

Step 2 Removing the Main PCA

a. Lift the main PCA and hold it slightly above the blower assembly to provide access to the blower cable connectors and the lite pipe.

b. Disconnect the lite pipe from the PCA.

c. Disconnect the blower connectors from the main PCA.

d. Discconect the pressure tubing and flow sensor tubing from the PCA.

c. Lift the main PCA up and away from the bottom enclosure assembly.

Step 3 Removing the Key Pad

Remove: • Key Pad

(See section 7.4.3 for more detailed instructions on removing the key pad.)

NOTE: The Display Assembly is permanently attached to the main PCA.

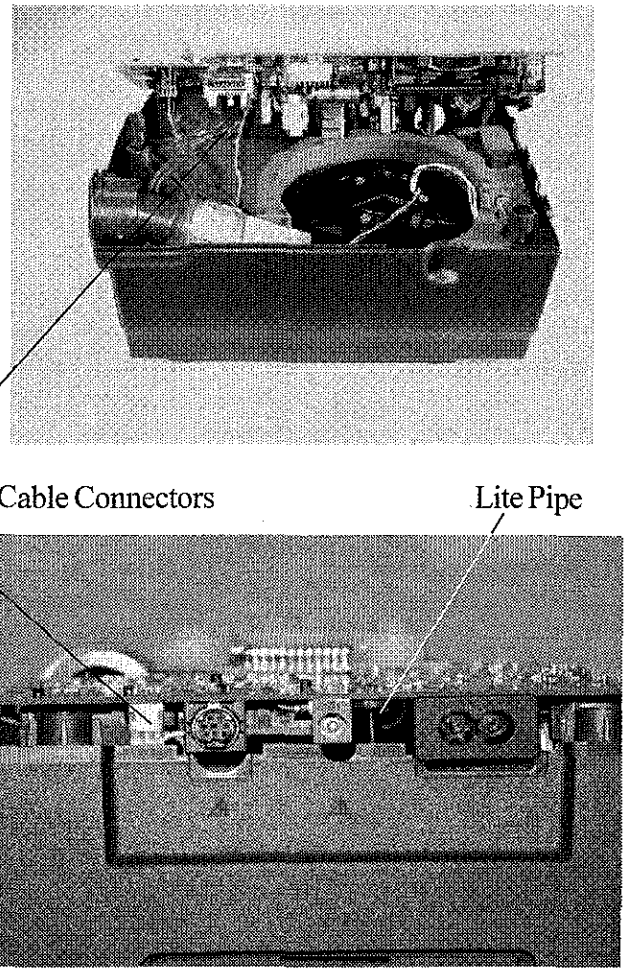


Figure 7-7
Location of the blower cable connectors and lite pipe

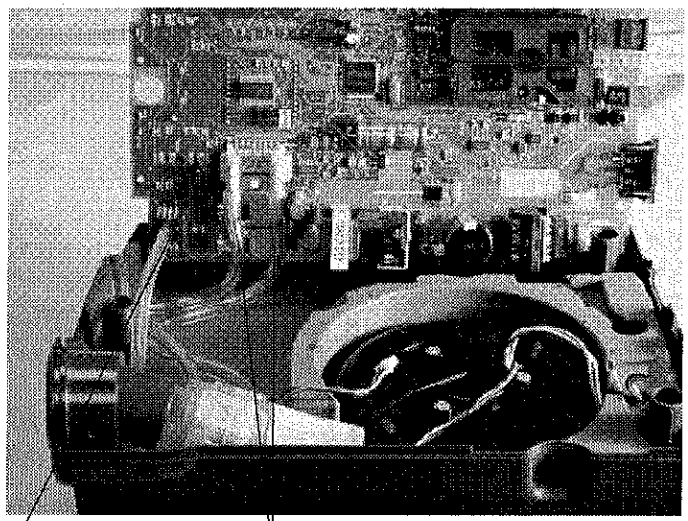


Figure 7-8
Flow Sensor and Pressure Tubing

Step 3 Installing the Key Pad

Install: • Key Pad

(See section 7.4.3 for more detailed instructions on installing the key pad.)

Step 4 Installing the Main PCA

a. While holding the main PCA over the bottom enclosure assembly, attach the flow sensor tubing and pressure tubing to the PCA.

b. Attach the blower connectors and the lite pipe.

c. Gently set the main PCA down on the three stands that will hold the main PCA in place.

Step 5 Installing the Top Enclosure

Install: • Top Enclosure

(See section 7.4.1 for more detailed instructions on installing the top enclosure.)

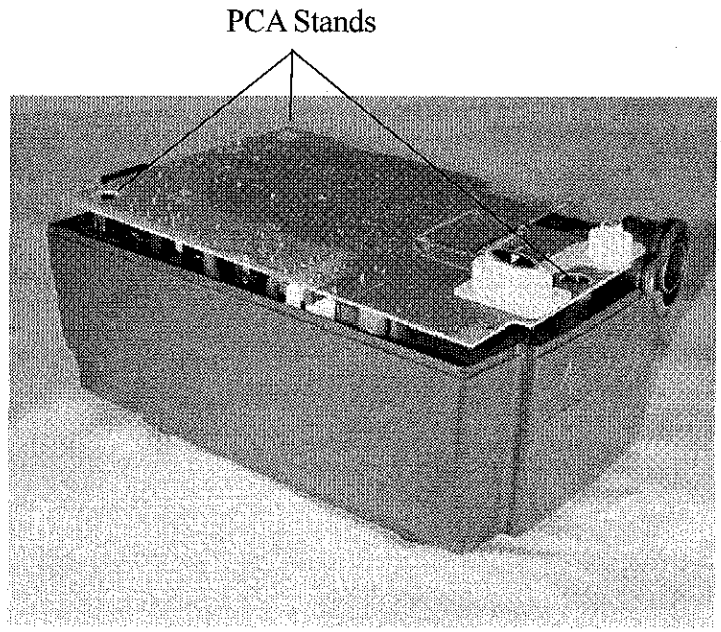


Figure 7-9
Placement of the Main Printed Circuit Assembly

7.4.3 Key Pad Replacement

Replacement Part Number **1008476**

Included in Kit:	Tools Required:
Key Pad	Phillips screwdriver (No. 2 medium) Flat-blade screwdriver (small)

Procedure

Removed / Installed During Process:

- Top Enclosure (See Section 7.4.1 for more detailed instructions).
- Main PCA (See Section 7.4.2 for more detailed instructions).
- Key Pad

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

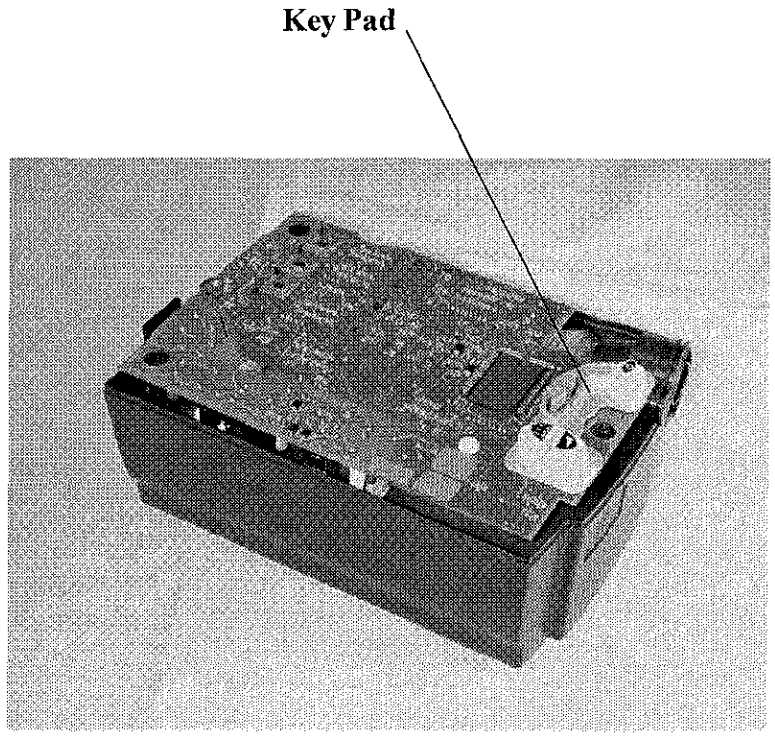


Figure 7-10
Key Pad

Key Pad Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Remove: • Remove Main PCA

(See Section 7.4.2 for more detailed instructions on removing the Main PCA).

Step 3 Removing the Key Pad

a. Carefully lift the key pad from the main PCA. There are three rubber locking pins that hold the key pad to the main PCA.

NOTE: The display assembly is permanently attached to the main PCA.

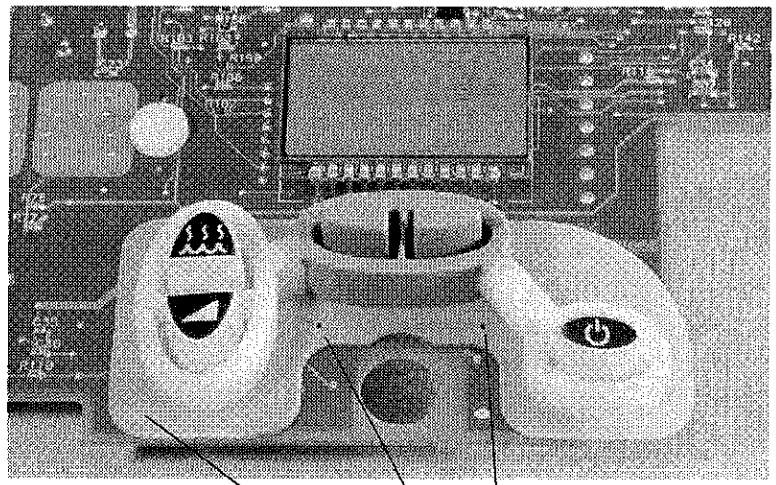


Figure 7-11
Key Pad

Key Pad Replacement (Continued)

Step 4 Installing the Key Pad

a. Place the key pad on the main PCA. Align the locking pins with the three holes on the display assembly. Press down on the locking pins until they snap into place.

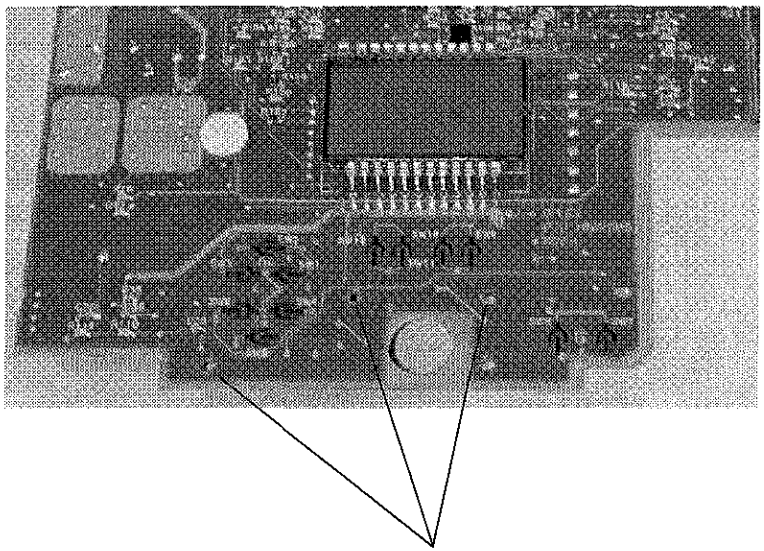


Figure 7-12
Pin Location

Step 5 Installing the Main PCA.

Install: • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the Main PCA.)

Step 6 Installing the Top Enclosure

Install: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

7.4.4 Outlet Port Replacement

Replacement Part Number 1008477

Included in Kit:	Tools Required:
Outlet port	Phillips screwdriver (No. 2 medium)

Procedure

Removed / Installed During Process:

- Top enclosure (See Section 7.4.1 for more detailed instructions).
- Main PCA (See Section 7.4.2 for more detailed instructions).
- Pressure Tubing
- Outlet Port

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

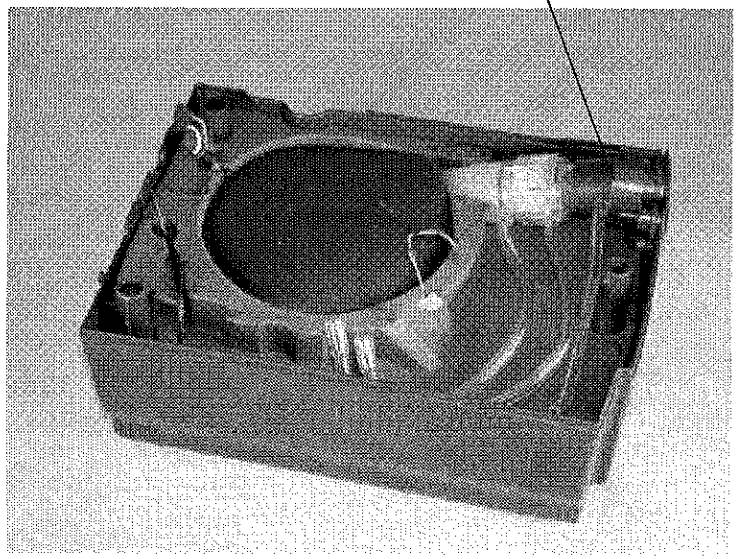


Figure 7-13
Outlet Port

Outlet Port Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Removing: • Main PCA

(See Section 7.4.2 for more detailed instructions on removing the main PCA.)

Step 3 Removing the Outlet Port

a. Remove the pressure tubing from the outlet port.

b. Lift the outlet port out of the bottom enclosure and away from the flow sensor.

Step 4 Installing the Outlet Port / Silicone Tube

a. Slide the outlet port into the flow sensor.

b. Place the outlet port in the bottom enclosure.

c. Push the pressure tubing back onto the pressure pick-off.

Step 5 Installing the Main PCA

Install: • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the main PCA.)

Step 6 Installing the Top Enclosure

Install: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

7.4.5 Flow Sensor Replacement

Replacement Part Number 1008490

Included in Kit:	Tools Required:
Flow Sensor	Phillips screwdriver (No. 2 medium)

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

Procedure

Removed / Installed During Process:

- Top enclosure (See Section 7.4.1 for more detailed instructions.)
- Main PCA (See Section 7.4.2 for more detailed instructions.)
- Tubing (See Section 7.4.4 for more detailed instructions.)
- Outlet Port (See Section 7.4.4 for more detailed instructions.)
- Flow Sensor

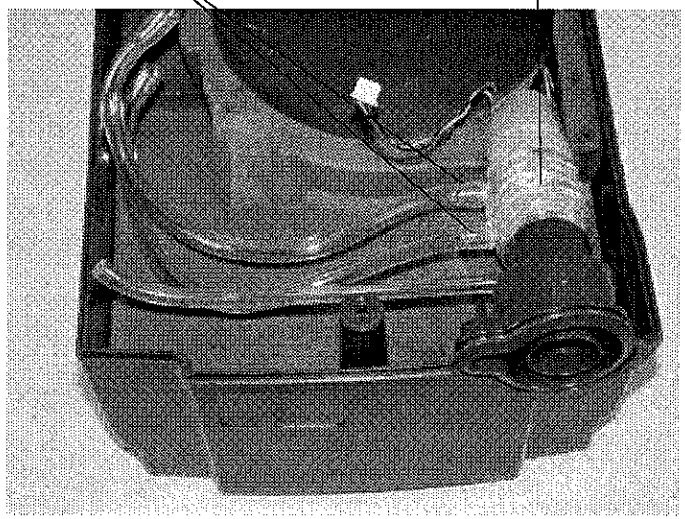


Figure 7-14
Flow Sensor and Tubing

Flow Sensor Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Removing: • Main PCA

(See Section 7.4.2 for more detailed instructions on removing the main PCA.)

Step 3 Removing the Outlet Port

Removing: • Tubing/Outlet Port

(See Section 7.4.4 for more detailed instructions on removing the tubing/outlet port.)

Step 4 Removing the Flow Sensor

a. Gently pull flow sensor tubing off the flow sensor.

b. Slide the flow sensor out of the silicone tubing.

Step 5 Installing the Flow Sensor

a. Slide the flow sensor into the silicone tubing.

b. Connect the pressure tubing from P2 on the PCA to the port on the flow sensor closest to the outlet port.

c. Connect the pressure tubing from P1 on the PCA to the port on the flow sensor closest to the blower.

Step 6 Installing the Outlet Port

Installing • Outlet Port

(See Section 7.4.4 for more detailed instructions on installing the outlet Port.)

Step 7 Installing the Main PCA

Installing • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the main PCA.)

Step 8 Installing the Top Enclosure

Installing • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

7.4.5 Silicone Tube Replacement

Replacement Part Number 1011218

Included in Kit:	Tools Required:
Flow Sensor	Phillips screwdriver (No. 2 medium)

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

Procedure

Removed / Installed During Process:

- Top enclosure (See Section 7.4.1 for more detailed instructions.)
- Main PCA (See Section 7.4.2 for more detailed instructions.)
- Outlet Port (See Section 7.4.4 for more detailed instructions.)
- Flow Sensor (See Section 7.4.5 for more detailed instructions.)
- Silicone Tube

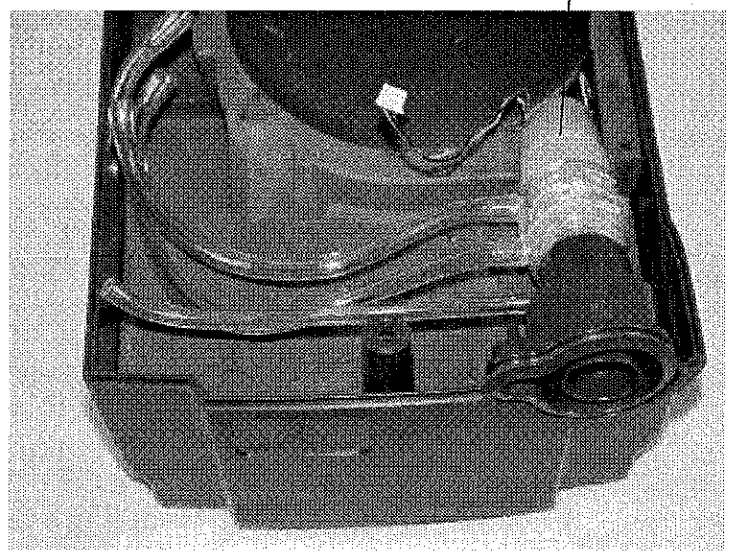


Figure 7-15
Silicone Tube

Silicone Tube Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Removing: • Main PCA

(See Section 7.4.2 for more detailed instructions on removing the main PCA.)

Step 3 Removing the Outlet Port

Removing: • Tubing/Outlet Port

(See Section 7.4.4 for more detailed instructions on removing the tubing/outlet port.)

Step 4 Removing the Flow Sensor

Removing: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on removing the flow sensor.)

Step 5 Removing the Silicone Tube

a. Slide the silicone tube off of the blower assembly.

Step 6 Installing the Silicone Tube

a. Slide the silicone tube onto the blower assembly.

Step 7 Installing the Flow Sensor

Installing: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on installing the flow sensor.)

Step 8 Installing the Outlet Port

Installing: • Outlet Port

(See Section 7.4.4 for more detailed instructions on installing the outlet port.)

Step 9 Installing the Main PCA

Installing • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the main PCA.)

Step 10 Installing the Top Enclosure

Installing • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

7.4.7 Blower Assembly Replacement

Replacement Part Number 1011213

Included in Kit:	Tools Required:
Blower Assembly	Phillips screwdriver (No. 2 medium)

Procedure

Removed / Installed During Process

- Top enclosure (See Section 7.4.1 for more detailed instructions.)
- Main PCA (See Section 7.4.2 for more detailed instructions.)
- Tubing/Outlet port (See Section 7.4.4 for more detailed instructions.)
- Flow Sensor (See Section 7.4.5 for more detailed instructions.)
- Silicone Tubing (See Section 7.4.6 for more detailed instructions.)
- Blower Assembly

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

NOTE: If the Blower Assembly is replaced, the unit must run-in for two hours.

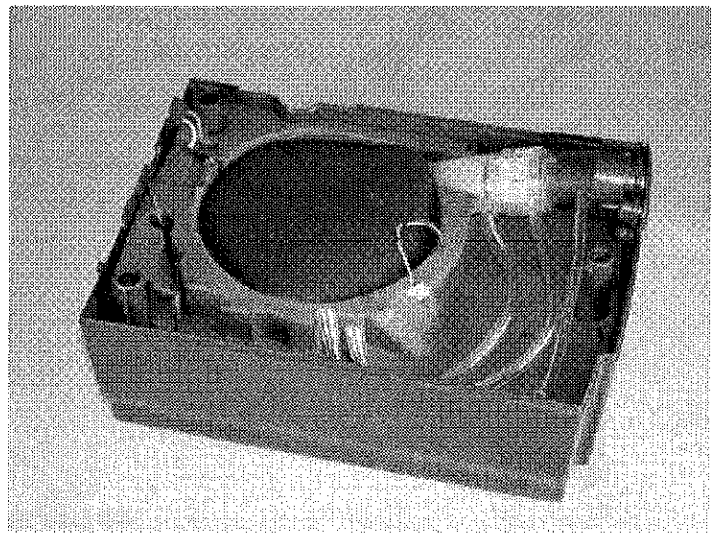


Figure 7-16
Blower Assembly

Blower Assembly Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Removing: • Main PCA

(See Section 7.4.2 for more detailed instructions on removing the main PCA.)

Step 3 Removing the Outlet Port

Removing: • Outlet Port

(See Section 7.4.4 for more detailed instructions on removing the outlet port).

Step 4 Removing the Flow Sensor

Removing: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on removing the flow sensor.)

Step 5 Removing the Silicone Tube

Removing: • Silicone Tube

(See Section 7.4.6 for more detailed instructions on removing the silicone tube.)

Step 6 Removing the Blower Assembly

a. Lift the blower top foam up and away from the blower assembly.

b. While holding the bottom enclosure, lift the blower assembly up and away from the bottom enclosure.

Blower Assembly

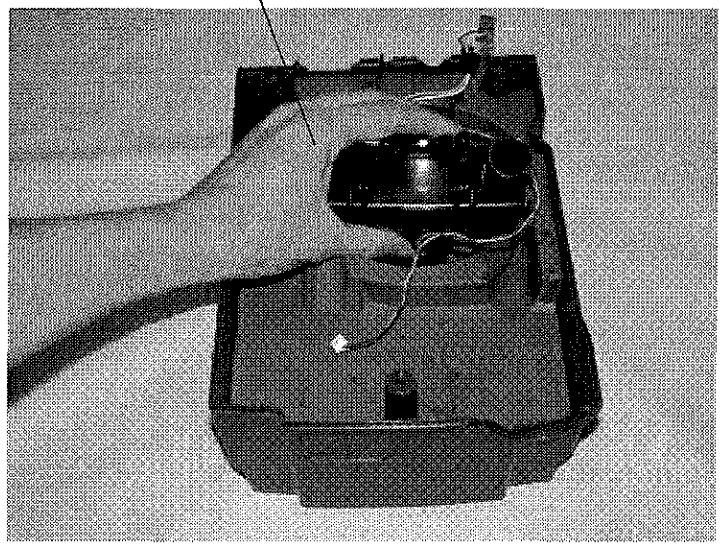


Figure 7-17
Blower Assembly Removal

Blower Assembly Replacement (Continued)

Step 5 Installing the Blower Assembly

a. Remove the protective backing from the adhesive ring on the blower assembly.

b. Align the blower assembly air outlet with the opening in the foam insert.

c. Firmly press the blower assembly into the foam insert.

d. Wrap the red/green/black wiring around the bottom of the air outlet one time.

e. Place the blower top foam over the blower assembly and press into the foam insert.

Step 6 Installing the Silicone Tube

Install: • Silicone Tube

(See Section 7.4.6 for more detailed instructions on installing the silicone tube.)

Step 7 Installing the Flow Sensor

Install: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on installing the flow sensor.)

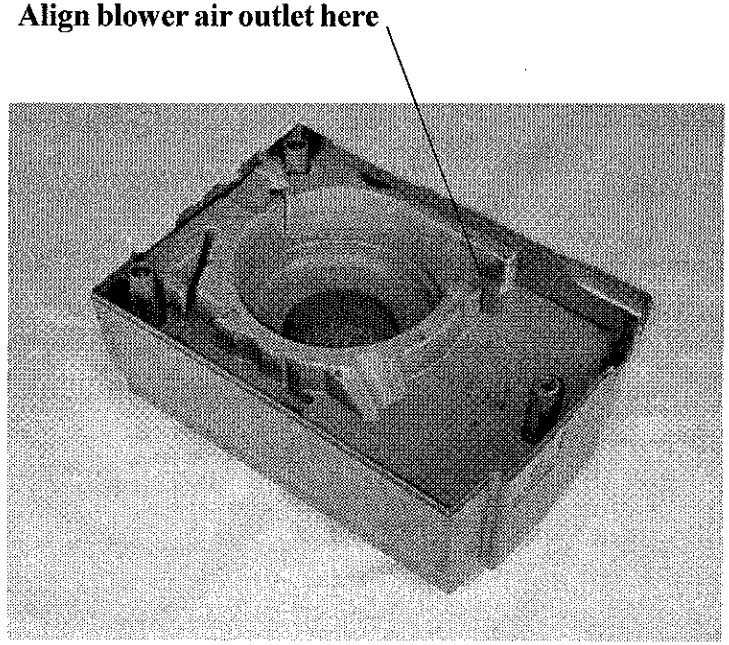


Figure 7-18
Foam Insert

Step 8 Installing the Outlet Port

Install: • Outlet Port

(See Section 7.4.4 for more detailed instructions on installing the outlet port.)

Blower Assembly Replacement (Continued)

Step 9 Installing the Main PCA

Installing • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the main PCA.)

Step 10 Installing the Top Enclosure

Installing • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

7.4.8 Bottom Enclosure Replacement

Replacement Part Number 1011929

Included in Kit:	Tools Required:
Bottom Enclosure (w / label) 8 Hi - Lo x 1/2" (x3)	Phillips screwdriver (No. 2 medium)

Procedure

Removed / Installed During Process:

- Filters (See Section 5.3.1 for more detailed instructions).
- Top enclosure (See Section 7.4.1 for more detailed instructions.)
- Main PCA (See Section 7.4.2 for more detailed instructions.)
- Tubing/Outlet port (See Section 7.4.4 for more detailed instructions.)
- Flow Sensor (See Section 7.4.5 for more detailed instructions.)
- Silicone Tubing (See Section 7.4.6 for more detailed instructions.)
- Blower Assembly (See Section 7.4.7 for more detailed instructions.)
- Bottom Enclosure

WARNING: Electrical shock hazard: Disconnect the electrical supply before attempting to make any repairs to the device.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Repairs made to this device must be performed only in an antistatic, ESD-protected environment.

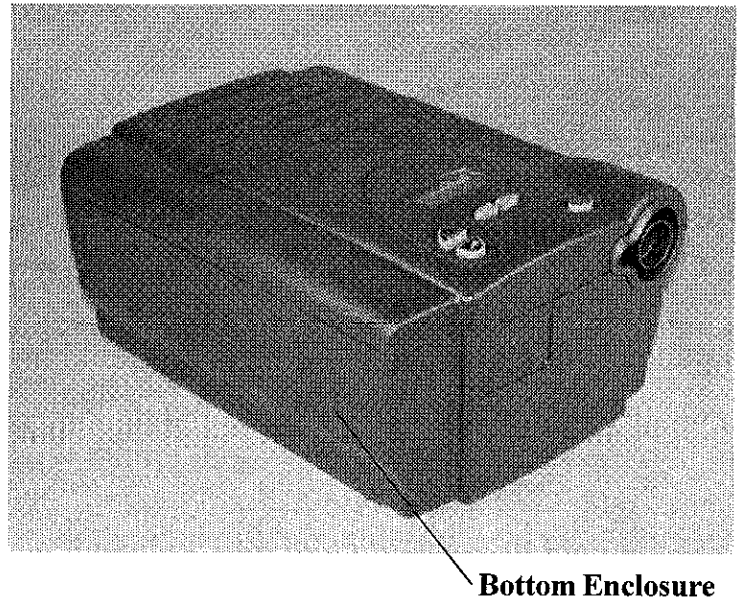


Figure 7-18
Bottom Enclosure

Bottom Enclosure Replacement (Continued)

Step 1 Removing the Top Enclosure

Removing: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on removing the top enclosure.)

Step 2 Removing the Main PCA

Removing: • Main PCA

(See Section 7.4.2 for more detailed instructions on removing the main PCA.)

Step 3 Removing the Outlet Port

Removing: • Outlet Port

(See Section 7.4.4 for more detailed instructions on removing the outlet port).

Step 4 Removing the Flow Sensor

Removing: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on removing the flow sensor.)

Step 5 Removing the Silicone Tube

Removing: • Silicone Tube

(See Section 7.4.6 for more detailed instructions on removing the silicone tube.)

NOTE: Remember to remove the DC Jack Plug from the old bottom enclosure and place it on the new bottom enclosure.

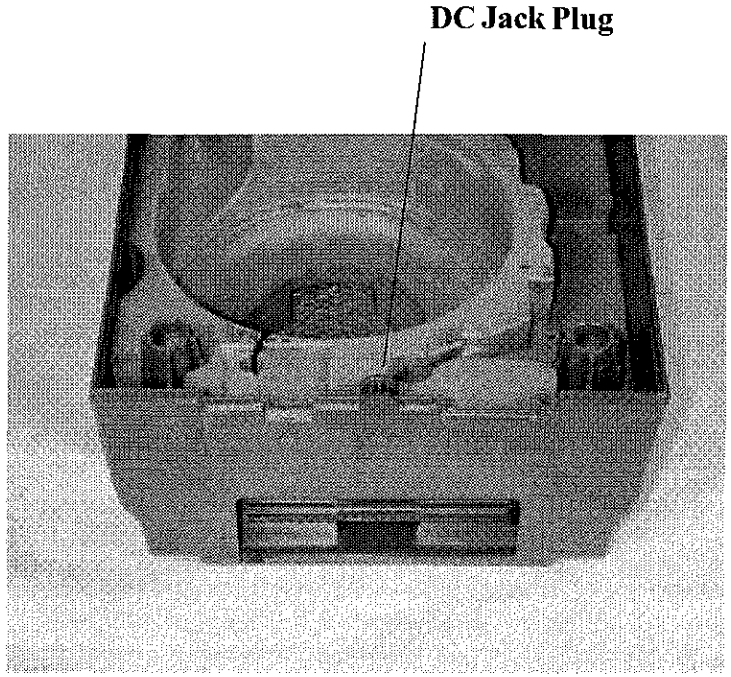


Figure 7-19
Bottom Enclosure

Bottom Enclosure Replacement (Continued)

Step 6 Removing the Blower Assembly

Remove: • Blower Assembly

(See Section 7.4.7 for more detailed instructions on removing the blower assembly.)

Step 7 Installing the Bottom Enclosure

NOTE: Contact Respironics Product Support Department for bottom enclosure ordering information.

Step 8 Installing the Blower Assembly

Install: • Blower Assembly

(See Section 7.4.7 for more detailed instructions on installing the blower assembly.)

Step 9 Installing the Silicone Tube

Install: • Silicone Tube

(See Section 7.4.6 for more detailed instructions on installing the silicone tube.)

Step 10 Installing the Flow Sensor

Install: • Flow Sensor

(See Section 7.4.5 for more detailed instructions on installing the flow sensor.)

Step 11 Installing the Outlet Port

Install: • Outlet Port

(See Section 7.4.4 for more detailed instructions on installing the outlet port.)

Step 12 Installing the Main PCA

Install: • Main PCA

(See Section 7.4.2 for more detailed instructions on installing the main PCA.)

Step 13 Installing the Top Enclosure

Install: • Top Enclosure

(See Section 7.4.1 for more detailed instructions on installing the top enclosure.)

Chapter 8: Testing

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REMstar Pro CPAP System with Heated Humidifier Testing Data Sheet 8-13

Notes:

Chapter 8: Testing

8.1 Testing Process

The following process should be followed after a repair has been performed on the REMstar Pro CPAP System or on the Respironics Heated Humidifier.

NOTE: The following tests may be used as a Performance Verification as a way to determine that the CPAP System and Heated Humidifier are functioning properly. This verification shall be performed at periodic intervals commensurate with hospital or home care provider guidelines for preventive maintenance: between rentals or during normal patient usage (as routine maintenance).

Perform the following in order:

1. REMstar Pro CPAP Run-in* (Section 8.2)
2. REMstar Pro CPAP Calibration (Section 8.3)
3. REMstar Pro CPAP Final Test* (Section 8.4)
4. Respironics Heated Humidifier* Test (Section 8.5)

*The same data sheet is used for all tests. Sections not used due to the testing of only the CPAP or Humidifier should be marked as NA (Not Applicable).

NOTE: The Encore SmartCard must be inserted into the unit under test.

8.2 REMstar Pro CPAP System Run-In

Purpose

This procedure provides setup instructions for the REMstar Pro CPAP System.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Use and follow appropriate Electro-Static Discharge (ESD) procedures.

Equipment

Test Orifice (see Appendix A)

Step 1 Blower Hours (Pre Run-In)

a. Connect the REMstar Pro CPAP System into the proper AC Power source.

b. Record the Blower Hours shown on the display screen in the space provided on the REMstar Pro CPAP System Data Sheet.

NOTE: Blower hours are temporarily displayed beside a fan symbol during the power up sequence.

Step 2 Setup

a. Place the test orifice on the outlet of the UUT.

b. Enter the Setup menu and set the pressure to 10cm H_2O. (See Section 4.2 for instructions).

c. Run the unit for a minimum of 2 hours.

Step 3 Blower Hours (Post Run-In)

a. With the blower still running, press the right User button to view the Blower Hours.

c. Record the Blower Hours in the space provided on the REMstar Pro CPAP System Data Sheet.

8.3 REMstar Pro CPAP System Pressure and Flow Calibration

Purpose

This procedure provides calibration of the REMstar Pro CPAP System.

CAUTION: Electronic components used in this device are subject to damage from static electricity. Use and follow appropriate Electro-Static Discharge (ESD) procedures.

Equipment

Digital Manometer (see Appendix A)

Flow Meter (see Appendix A)

1 section of pressure tubing

3 sections of patient tubing

1 flow control valve

O_2 adapter (see Appendix A)

End cap (to produce a dead head pressure)

Negative flow source
(capable of delivering at least 120 lpm @ 20 cm H_2O.)

NOTE: The SmartCard must be removed from the UUT.

Pressure sensor calibration

NOTE: The following calibration should be performed after any repair has been performed on the REMstar Pro CPAP System.

1. Pressure Sensor (zero)

a. While holding down the humidifier and ramp button, connect the REMstar Pro to the correct power source.

b. Continue to hold down the humidifier and ramp button until you hear two audible tones.

c. Press the right user button 5 times to reach the **P CAL 2** screen on the display of the REMstar Pro.

d. Press the ramp button to zero the pressure sensor. The display screen will flash **0.0** for a short time then return to the **P CAL 2** display screen.

REMstar Pro CPAP System Calibration (Continued)

Equipment Setup

NOTE: Refer to Figures 8-1 for proper connections to perform pressure calibration.

- Place the O_2 adapter on the outlet of the REMstar Pro.
- Connect the pressure tubing between the O_2 adapter and the digital manometer.
- Place the end cap on the O_2 adapter.

2. Pressure Sensor (span)

a. Press the humidifier button to adjust the span of the pressure sensor. The blower will start and the display screen will show the motor speed.

b. Press the humidifier or ramp button to raise or lower the the motor speed to achieve 25 cm H_2O on the manometer.

c. Once you have achieved 25 cm H_2O on the manometer, press the Start / Stop button. The display screen will flash **25.0** for a short time, the blower will stop and the display screen should return to **0.0.**

This completes the pressure sensor calibration.

NOTE: Do not disconnect the REMstar Pro from the power source. Proceed to Flow Sensor Calibration.

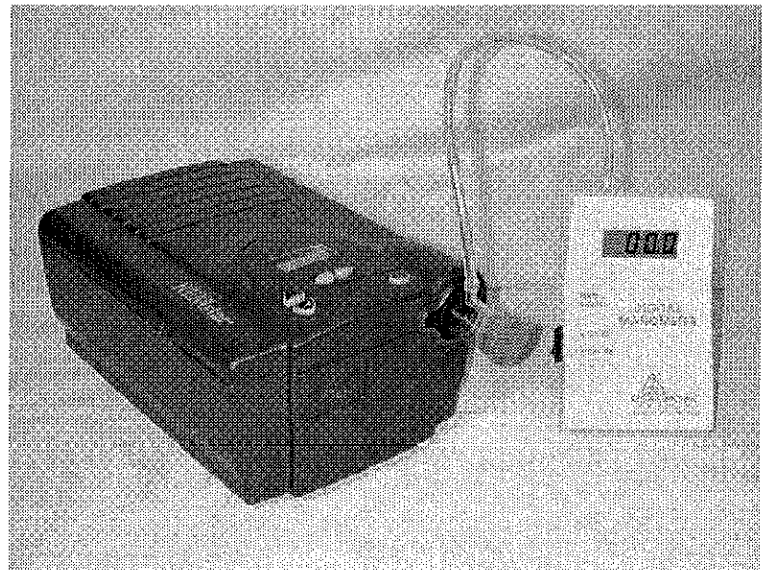

Figure 8-1
Pressure sensor Calibration